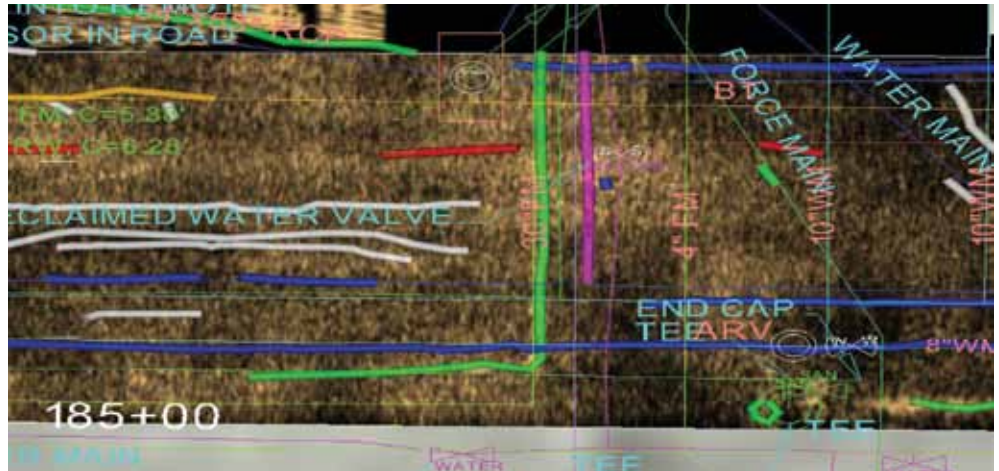


The Pivotal Role of Engineers In Utility Damage Prevention

BY WAYNE JENSEN

The typical timeline of road construction projects involving buried utilities ranges from five years to eight years in many, if not most, cases. Not one single moment of that timeline exists without the involvement of a Professional Engineer, from the Engineer of Record (EOR) on a project to engineers of project owners as well as engineers working for utilities and sometimes contractors. No decision about any aspect of the project is made without supporting input of a professional engineer. Purely based on “project face time,” the engineer has a pivotal role in providing critical input for utility damage prevention efforts.



What lies beneath.

The decisions of the EOR, beginning with project design, in many cases can have the most impact on utility damage prevention. A growing number of very credible case studies are proving projects designed with “Quality Level A” utility location data, which is the output of the efforts of Subsurface Utility Engineering (SUE), have much less damage than projects designed with “Quality Level D” data using only highly inaccurate as-built records of utilities, typically provided during “utility coordination activities.”

The phases of the typical project involving elements of work related to design, permitting and standard utility coordination efforts consume maybe 70% of the timeline, with 30% going for project bid and construction activities. The great majority of efforts to prevent damage focus on the part of the project timeline devoted to construction-related activities. It is as if responsibility for damage prevention does not begin until a project is being bid, and bidding contractors are required to include all costs in their bid associated with protecting buried utilities during construction. To make matters worse, the contractor is held totally responsible for this damage prevention effort without the advantage of being able to verify the location of buried facilities, as required by most bid documents, but virtually impossible to accomplish.

Technically, this “verification” amounts to a “contract requirement” to recover “Quality Level A” utility location data prior to bid. Such data recovery, if attempted by a bidding contractor, would take many weeks to accomplish when the bidding window would be a fraction of the time

necessary to complete. The cost of the effort would be many thousands of dollars in excess of what any one contractor could bear to win a project, not to mention there might be 10 or 20 bidding contractors faced with the same issue. It just can’t reasonably be done.

If the bid requirement for a contractor to verify the location of buried facilities prior to bid was not important for damage prevention, the EOR would not have that clause in place. Nobody disputes the value of verifying utility locations prior to bid. What needs to be addressed is the inclusion of “contract requirements” that are functionally impossible for contractors to meet and that all stakeholders know are not being done. These requirements only serve to shift the burden of responsibility for verifying the location of buried utilities from the EOR to the contractor. If, for whatever reason, the contractor does not actually recover the information, the burden for not doing so rests on them.

What might make better sense than having a contract requirement that cannot be reasonably accomplished would be for the EOR to provide this verification for the benefit of all bidding contractors prior to bid.

The EOR has the opportunity to pick the point in the project timeline where the site investigation is done:

– It can be easily proven the cost of providing SUE work immediately prior to bidding a project for construction for the benefit of all bidding contractors will be offset by reductions in bid cost and by solving other construction issues reducing project cost. We know that most EOR’s

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want to provide SUE data and would have to argue this point.

– At minimal cost, the EOR could establish line item provisions for SUE work during construction to verify accuracy of locate marks ahead of construction, which will facilitate the damage prevention effort of excavators. The excavator will always be responsible for using “sufficient work practices” within tolerance zones and the SUE work will eliminate damage to facilities resulting from inaccurate locates.

– If the EOR recommends to their project owners that SUE work should be done very early in the design process, they can use case studies that illustrate that the Return on Investment (ROI) ranges between \$4 and \$22 for every dollar spent on SUE work, depending on the study and types of work being done.

Obviously, we encourage EORs to take advantage of the 70% of the project timeline when they have the greatest opportunity for conducting data recovery activities that provide great value to damage prevention efforts. However, it is never too late for a project EOR to incorporate SUE work for damage prevention prior to construction and successfully prove the value of the effort will offset any associated cost.

While a case for EORs recovering high-quality utility location data using the efforts of “Subsurface Utility Engineering” firms can be

made under “Due Diligence” guidelines for Professional Engineers to provide the best “design,” we all must realize that cost of the effort will always be the barrier for them to actually get it done. All stakeholders must support the efforts of EORs in their justification to their project owners for the value of design with the highest quality utility location data rather than the lowest. Perhaps cost barriers can be overcome when such data recovery efforts become a moral, legal or ethical responsibility in project design.

The professional engineer can indeed have the most pivotal role in damage prevention of any stakeholder if they are supported by all stakeholders. The damage prevention industry as a whole desperately needs to work with the engineering community in making the case for project design using high-quality utility location data for the sake of protecting facilities and protecting lives. **DP**

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